IN THE CLAIMS

1-18. (canceled)

19. (new) A multi-processor system comprising:

a plurality of processors each operable to perform data processing, each of said plurality of processors being assigned identification data for identifying such processor;

a controller operable to broadcast broadcast data to all of said plurality of processors, the broadcast data including data usable by said plurality of data processors in performing the data processing; and

a sort mechanism operable to receive the identification data from ones of said plurality of processors when each of said ones completes the data processing, the sort mechanism operable to send the identification data received by it to said controller in a predetermined order,

wherein said controller is operable to obtain at least some of the identification data from said sort mechanism to use as obtained identification data and obtain results of the data processing completed by said ones of said plurality of processors, based on the obtained identification data, and generate and broadcast the broadcast data to all of said plurality of processors, the broadcast data including the obtained results and at least some of the obtained identification data,

each of said plurality of processors being operable to generate priority data usable by said controller to determine an order of reading the results of the data processing, receive the broadcast data and sort out data necessary to perform the data processing from the received broadcast data, based on the identification data included in the received broadcast data, and send the priority data to said sort mechanism together with the

identification data identifying such processor upon completing the data processing, and

said sort mechanism is operable to determine, based on the priority data, an order in which said ones of said plurality of processors send the identification data.

20. (new) The multi-processor system according to claim 19, wherein

said sort mechanism includes a plurality of registers, each one of said plurality of registers associated with one of said plurality of processors, and said sort mechanism is operable to record the priority data and the identification data received from said ones of said plurality of processors in said registers associated with said ones of said plurality of processors,

said sort mechanism further includes a comparator operable to compare the priority data to determine an order in which the identification data is recorded in said registers, and said sort mechanism is operable to determine an order in which the identification data recorded by it is sent by said ones of said plurality of processors, based on said order determined by said comparator.

21. (new) The multi-processor system according to claim 19, wherein said controller includes:

a memory operable to store data,

a storage controller operable to:

obtain the results of the data processing performed by said ones of said plurality of processors based on the obtained identification data,

store the obtained results in said memory, and

generate the broadcast data, the broadcast data including the results read from said memory and the obtained identification data.

22. (new) The multi-processor system according to claim 21, wherein each of said plurality of processors is operable to determine whether the data necessary for the data processing performed by such processor is included in the broadcast data and perform the data processing after sorting out the data necessary for the data processing, if any, send to said controller the results of the data processing performed by such processor together with the identification data identifying such processor in response to a request from said controller, and send process end notifying data to said sort mechanism in response to completion of the data processing, the process end notifying data including identification data identifying the completed data processing.

23. (new) The multi-processor system according to claim 19, wherein at least some of said plurality of processors are connected to each other in a ring topology via a shared memory, and data are transmitted and received between said at least some processors connected in the ring topology through said shared memory.

24. (new) A method of data processing, comprising the steps of:

providing a system having a plurality of processors operable to perform data processing, each one of the plurality of processors being assigned identification data identifying such processor, a controller operable to broadcast broadcast data to the plurality of processors, the broadcast data including the data used in the data processing, and a sort mechanism operable to receive the identification data from ones of the plurality of processors when the ones complete the data processing, the sort mechanism being operable to send the received identification data to the controller in a predetermined order;

receiving at least some of the identification data by the controller from the sort mechanism;

obtaining, by the controller, the results of the data processing performed by the ones of the plurality of processors, based on the identification data received from the sort mechanism;

generating and broadcasting the broadcast data to all of the plurality of processors, the broadcast data including results of the data processing and at least some of the identification data received by the controller;

generating, by each of the plurality of processors, priority data usable by the controller to determine an order of reading the results of the data processing performed by the ones of the plurality of processors;

sorting out data necessary to perform the data processing based on the identification data included in the broadcast data broadcasted by the controller;

performing the data processing by the ones of the plurality of processors using the sorted out data;

sending priority data from the ones of the plurality of processors to the sort mechanism upon the ones completing data processing, the priority data relating to the data processing performed by the ones together with identification data identifying the ones;

determining, based on the priority data, an order by which the ones of the plurality of processors send the identification data.

25. (new) A data processing system comprising:

a plurality of data processing means for performing data processing, each of said plurality of data processing means being

assigned identification data for identifying such data processing means;

a control means; and

a sort means operable to obtain the identification data from ones of said plurality of data processing means upon said ones completing the data processing, the sort means operable to send the obtained identification data to said control means in a predetermined order, wherein

said control means is operable to obtain results of the data processing performed by any of said ones of said plurality of data processing means based on the identification data received from said sort means, and to generate and broadcast broadcast data to all of said plurality of data processing means, the broadcast data including the results of the data processing performed by said ones of said plurality of data processing means and the identification data identifying said ones,

each of said plurality of data processing means is operable to generate priority data usable to (a) determine an order of reading the results of the data processing by said control means, (b) sort out data necessary to perform the data processing based on the identification data included in the broadcast data, (c) perform the data processing after sorting out the data necessary to perform the data processing, and send to said sort means, the priority data related to the data processing together with the identification data identifying such processor upon completing the data processing, and

said sort means is operable to determine an order in which the identification data is sent by each such processor, based on the priority data.

26. (new) A data processing system operable to perform two-way communication between a plurality of data processing means comprising:

a plurality of data processing means, each one of the plurality of data processing means being assigned identification data identifying such data processing means, and being operable to perform data processing after sorting out data necessary to perform the data processing and send priority data relating to the data processing together with the identification data identifying said one data processing means upon completing the data processing;

sort means operable to determine, based on the priority data, an order in which ones of said plurality of data processing means send the identification data, said sort means being operable to receive the identification data in the determined order from said ones of said plurality of data processing means after said ones complete the data processing;

means for obtaining the results of the data processing from said ones of said plurality of data processing means based on the identification data received from said sort means, and for generating the broadcast data including the identification data identifying said ones and the results of the data processing performed by said ones; and

means for broadcasting the broadcast data to said plurality of data processing means.

27. (new) A computer-readable storage medium having information recorded thereon for performing a method of two-way communication between a plurality of data processing means, said method comprising:

sorting out data necessary to perform data processing by ones of a plurality of data processing means;

performing the data processing by said ones of said plurality of data processing means;

sending priority data relating to the data processing by said ones of said plurality of data processing means together with identification data identifying said ones upon said ones completing the data processing;

determining, based on the priority data, an order in which said ones send the identification data;

receiving the identification data in the determined order from said ones after said ones complete the data processing;

obtaining the results of the data processing from said ones of said plurality of data processing means based on the determined order; and

generating the broadcast data including the identification data identifying said ones of said plurality of data processing means and the results of the data processing performed by said ones; and

broadcasting the broadcast data to said plurality of data processing means.

28. (new) A computer-readable storage medium having information recorded thereon for an apparatus including a computer to perform a method of two-way communication between a plurality of data processing means, each one of said plurality of data processing means being assigned identification for identifying said one data processing means, and ones of said plurality of data processing means being operable to perform data processing after sorting out data necessary to perform the data processing, and send priority data regarding the data processing together with the identification data identifying said ones upon said ones completing the data processing, said computer being operable to receive the identification data from said ones upon

said ones completing the data processing, determine an order in which said ones send the identification data based on the priority data, and receive the identification data in the determined order, wherein said method comprises:

obtaining the results of the data processing from any of said ones of said plurality of data processing means based on the identification data sent by said ones of said plurality of data processing means;

generating the broadcast data including the identification data identifying said ones of said plurality of data processing means and the results of the data processing performed by said ones; and

broadcasting the broadcast data to said plurality of data processing means.

29. (new) A semiconductor device adapted for use within an apparatus including a computer, said apparatus operable to permit two-way communication between a plurality of data processing means, each one of said plurality of data processing means being assigned identification for identifying said one data processing means, and ones of said plurality of data processing means being operable to perform data processing after sorting out data necessary to perform the data processing, and send priority data regarding the data processing together with the identification data identifying said ones upon said ones completing the data processing, said computer being operable to receive the identification data from said ones upon said ones completing the data processing, determine an order in which said ones send the identification data based on the priority data, and receive the identification data in the determined order, said semiconductor device being operable to perform a method, said method comprising:

obtaining the results of the data processing from any of said ones of said plurality of data processing means based on the identification data sent by said ones of said plurality of data processing means;

generating the broadcast data including the identification data identifying said ones of said plurality of data processing means and the results of the data processing performed by said ones; and

broadcasting the broadcast data to said plurality of data processing means.